



30400 E. Broadway
Walbridge, OH 43465
Phone (800) 955-8031

SUPPLIER QUALITY MANUAL



A Subsidiary of AK Steel Corporation

Dear Supplier,

The following document is known as the AK Tube LLC Supplier Quality Manual.

This electronic document is provided to define both our customary and general guidelines of how AK Tube conducts our business. This outline of our expectations is to create what AK Tube believes is a strong, competitive and value added supply chain.

AK Tube's success is dependent upon our ability to provide the highest value to our customers through price, quality and service. A close working relationship with our supplier base is critical to the achievement of this objective. Our hope is that this Manual provides you with the necessary information that will be valuable to our mutual efforts of conducting business in a professional, efficient and profitable manner.

This manual addresses all Suppliers who supply products, raw materials, services, which directly affect the quality of AK Tube's products. This updated manual supersedes all supplier information manuals previously provided to you by AK Tube LLC.

Should you have any questions, please contact the AK Tube Purchasing representative.

Thank you for your continued interest and support.

Sincerely,

Ed Urbaniak
President, and CEO – AK TUBE LLC, Walbridge, OH

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Referenced under section(s):	Web Site References	
History, Company Web Location	www.aktube.com	
Company Web Location	www.aksteel.com	
4.1	www.AIAG.ORG	
8.2	http://www.mdsystem.com/html/en/home_en.htm	
8.2	http://echa.europa.eu/home_en.asp	
8.2	http://echa.europa.eu/chem_data/candidate_list_table_en.asp	
8.2	http://sec.gov/rules/final/2012/34-67716.pdf	
Revisions	Revision History	
Signatures	Signatures of Approval	

Section	Description	Rev
History	<p>AK Tube. Innovative solutions in tubing products.</p> <p>AK Tube LLC is a leading supplier of ERW tubing products. Founded in 1977, it became a wholly owned subsidiary of AK Steel in 2001. Backed by the recognized leadership and resources of AK Steel, AK Tube provides innovative tubing solutions for both OEM and steel processors in a wide variety of applications. Major markets include truck exhaust systems, hydro-forming, Automotive Body in White, air conditioning & heating products, outdoor furniture, gas grills and automotive.</p> <p>Our company has been a leader specializing in technically challenging, mission critical and high value-added products. We have capability to produce tubing in diameters from .750 through 6.625 inches, and gauges from 20 through 7. With the exceptional breadth and depth of our product line, we're able to be the single-source tubing supplier for the majority of our top 25 customers.</p> <p>AK Tube offers an extensive selection of Carbon and Stainless tubing products. Supplied in Hot Rolled, Pickled and Oiled, Cold Rolled, Aluminized, Galvanized, Dual Phase, Trip Steels, Alumi-therm, UltrAlume, Galvalume, Galvanneal , Zinc-Nickel, Bare Stainless and Coated Stainless tubing. Standard shapes include rounds, squares, rectangles, ellipse, trapezoid and ovals, in a sizes range from .750" through 6.625", with wall thickness from .035" to .180".</p> <p>Our quality assurance program is among the most rigorous in the industry. We use only prime steel that meets our exacting standards for quality, delivery, and technical support. We monitor our quality with non-destructive testing such as eddy current and flux leakage, and conduct destructive testing several times a coil, a rate which exceeds ASTM destructive standards and is more than twice the industry average.</p> <p>Our commitment to quality has earned us ISO 9001:2008 certification, the international standard for quality assurance, as well as ISO/TS16949:2009 certification, the supplier quality standard for the automotive industry.</p> <p>Our commitment to the environment and ensuring our "Green Global Footprint" has earned us certification to the international standard, ISO14001:2015.</p> <p>The key to the quality of our customized tubing is a proprietary process that minimizes work hardening effects. This allows for more severe bending and forming operations, while maintaining consistent quality from piece to piece.</p> <p>Few tubing manufacturers can produce large diameter, thin wall steel tubing as successfully as AK Tube. Our proprietary process allows the tube to be fabricated and formed with a diameter-to thickness ratio of</p>	5/1/18

	<p>100 to 1. That's one reason we're the number one choice for the leading truck exhaust manufacturers.</p> <p>We're also experts in producing and fabricating a wide range of coated sheet steel tubing products. Our remetalization process lets our customers take advantage of the unique properties of the coated steel without concern about the cosmetic appearance.</p> <p>Our superior Suppliers play an important role in our history of success and are keys to our continued success. Please visit us at: www.aktube.com</p>	
Quality Policy / Mission Statement	<p>The AK team is dedicated to being the leader in safely producing superior products with pride and integrity with management commitment to continually improve the effectiveness of the quality management system.</p> <p>We are committed to increasing profitability through mutually beneficial relationships with our employees, customers and suppliers. AK Tube shall seek to achieve excellence in safety, quality and productivity through the selection and monitoring of key indicators. The spirit of AK Tube is our people.</p>	7/15/09
Corporate Location	<p>AK Tube LLC A Subsidiary of AK Steel Corporation 30400 East Broadway Walbridge, Ohio 43465 1-800-955-8031</p> <p>Parent Company Corporate Office: AK Steel Corporation 9227 Centre Pointe Drive West Chester, Ohio 45069 Stock Symbol: AKS on the New York Stock Exchange</p>	7/15/09
Company Web Locations	For specific locations, go to www.aktube.com or www.aksteel.com	
3.1 Supplier Criteria	<p>A primary objective of AK Tube is to achieve the "Best in Class" status in supplier base management and supplier performance. As AK Tube focuses on core manufacturing processes, our Suppliers must also be developing and perfecting their own core competencies. To maintain a long-term relationship with AK Tube, Suppliers must:</p> <ul style="list-style-type: none"> • Be globally competitive in quality, technology, service, and cost. • Provide defect free products for all direct and indirect materials / resources. 	7/15/09

	<ul style="list-style-type: none"> • Maintain a quality system, which meets the requirements of the regionally recognized standard. • Proactive in Continuous Improvement • Be capable of validating products for AK Tube specific applications. • Consistently deliver on time. • Be proactive and flexible in responding to changing customer demands. 	
<p>3.2 Initial Assessment</p>	<p>The first step in approving a supplier to join our Supplier base team is to complete a Supplier Self Assessment Questionnaire (7.4.3-PC-04-F) that begins the process of collecting business information about a potential supplier.</p> <p><u>First Step</u> AK Tube will send a potential supplier a copy of the supplier quality survey. The supplier will complete the survey and return it to AK Tube. AK Tube will evaluate the submitted information and, if deemed needed, may request a QA to perform an on-site audit of the supplier.</p> <p><u><i>*Classification for New Suppliers will be revised once performance history becomes available.</i></u></p> <p>When the evaluation is concluded with a satisfactory result, the supplier will be added to the Approved Supplier List.</p> <p>The second step (if required) in the approval process is an onsite assessment at the supplier's location. The Supplier will be contacted to arrange for the onsite initial assessment.</p> <p><u>Second Step</u> When an on-site audit is required, AK Tube personnel will conduct the audit. Upon completion of the audit, AK Tube will review the results with the supplier. If a corrective action were required, the supplier would be responsible for developing the necessary corrective action plan, implementation and submit to AK Tube.</p>	<p>9/14/15</p>
<p>3.3 Supplier Approval / Performance (See also 4.8 Supplier Development)</p>	<p>A supplier is approved after submitting the quality survey or the completion of an on-site audit. If the supplier is ISO 9001 or ISO/IATF16949 certified, completion of the survey may be waived. AK Tube will request a copy of the registration certificate for our records. The approval process ends after all of the criteria have been met. The supplier is then added to our approved supplier list.</p> <p>Supplier performance is monitored and recorded monthly for both quality and delivery. AK Tube requires of its Suppliers 100% on-time, defect free material. Suppliers may request a copy of their performance reports by contacting the responsible buyer or AK Tube Purchasing Department.</p>	<p>5/1/18</p>

*If repeated infractions occur and supplier corrective actions do not resolve the issues, the supplier will be placed on a probation status. All purchases from these suppliers will be limited and monitored closely.

*AK Tube will remove a supplier from the Approved Supplier List, after 6 months of probation and/or repeated attempts to work with the supplier fail to produce an acceptable outcome. The Supplier may be removed sooner if the supplier refuses to work with AK Tube in resolving issues. This will be a joint decision with Quality Assurance.

3.4
Supplier
Quarterly
Ratings

	DELIVERY	QUALITY
Criteria	On time Delivery (OTD)	Parts Per Million (PPM)
Calculation	Total parts/lbs received divided by total parts/lbs should have received	Non Coil: Total parts rejected divided by total parts received multiplied by 1000000 stated as a PPM Defective
(Based on 3 month Quarter)		For Coil: Total lbs rejected divided by total lbs received stated as a Percent Defective
Metric	OTD %	PPM Defective Percent Defective
Goal:	100%	0
Green	98%-100%	≤ 100 PPM 0-.0100%
Yellow	96%-98%	101-299 PPM .0101-.0299%
Red	< 96%	≥ 300 PPM ≥ .0300%

The above table is used to generate quarterly ratings for each supplier. OTD's and PPM'S are captured for three consecutive calendar months to calculate quarterly supplier scores. New calendar year begins in January.

Suppliers with 3 consecutive months with "Red" level performance will be placed into a Probationary Status as referenced in Section 4.17

8/16/16

Section 4.0

Supplier Performance Requirements

4.1
Quality Systems

AK Tube requires all Suppliers of purchased product to achieve registration, by an accredited certification body, to the current revision of the ISO 9001 standard.

On at least an annual basis, all Suppliers that are not certified to ISO/IATF16949 will be required to participate in the AK Tube "Supplier

5/1/18

	<p>Development Program.” This program seeks to develop suppliers toward “adherence to the intent and content” of the ISO/IATF16949 standard. (See section 4.15 Supplier Development).</p> <p>AK Tube recommends that automotive suppliers take the initiative to register to ISO/IATF16949.</p> <p>All AK Tube Suppliers can purchase copies of the ISO/IATF16949 standard or the ISO 9001 standard from Automotive Industry Action Group, AIAG. www.AIAG.org</p> <p>Any supplier that has its Quality Management System Certification withdrawn by the issuing Certification Body or, the supplier by its own action, cancels their certification, must notify their AK Tube buyer and the AK Tube manufacturing locations within five (5) working days.</p> <p>The Supplier’s management shall review the quality system at appropriate intervals, to ensure its suitability and effectiveness. AK Tube shall assess its suppliers with the goal of the Supplier maintaining registration to ISO 9001.</p>	
4.2 Advanced Product Quality Process (APQP)	Upon notification of supplier selection, it is the responsibility of the Supplier’s organization to provide support / resources for Advanced Quality Planning activity.	7/15/09
4.3 Material / Performance Test Results	<p>Evidence of compliance must be submitted.</p> <p>Material Tests results must include:</p> <ul style="list-style-type: none"> *Design record change level of parts tested (if applicable) *Revision number/date of specification to which parts were tested *Date on which testing took place *Material subcontractor’s name <p>Performance Tests results must include:</p> <ul style="list-style-type: none"> *Design record change level of parts tested (if applicable) *Revision number/date of specification to which parts were tested *Any authorized engineering change documents not yet incorporated into the design record (if applicable) *Date on which testing took place 	7/15/09
4.4 Qualified Laboratory Documentation	The Supplier shall have a laboratory scope and documentation showing that any external laboratories used for testing/calibration are qualified to ISO/TS-17025 or the National equivalent.	7/15/09
4.5 Checking Aids	Where checking aids (product specific gauges, etc.) are used, the Supplier shall certify that all aspects of these aids comply with product requirements. The Supplier shall provide for appropriate preventive maintenance for these checking aids for the life of the parts.	7/15/09

<p>4.6 Inspection and Testing</p>	<p><u>Receiving inspection</u> - The supplier shall ensure that incoming product is not used or processed (except in the circumstances described below) until it has been inspected or otherwise verified as conforming to specified requirements. Where incoming product is released for urgent production purposes before verification, it shall be positively identified and recorded in order to permit immediate recall and replacement in the event of nonconformity to specified requirements.</p> <ul style="list-style-type: none"> • Rejected Material – any purchased material received and subsequently rejected will generate a Defective Material Report (DMR). Disposition of the non-conforming material will be either: <ol style="list-style-type: none"> 1. Use Material as is 2. Rework the material at the supplier’s expense 3. Request that the material be returned to the supplier or scrapped at the supplier’s expense <p><u>In-process inspection</u> - The supplier shall inspect and test the product as required by the Control Plan and/or documented procedures. No production parts should be made until a first piece inspection has been completed and approved. Any reworked material shall be re-inspected to ensure all characteristics meet the original specifications.</p> <p><u>Final inspection and testing</u> - Product cannot be shipped until all activities specified on the Control Plan or in the inspection procedures have been satisfactorily completed. The supplier shall perform an inspection of the finished product and packaging prior to shipping.</p>	<p>7/15/09</p>
<p>4.7 Corrective Actions Required</p>	<p>If the results of the actual manufacturing process do not meet the requirements for on-going quality and quoted tool capacity, corrective action must be taken to correct any deviation. If the manufacturing and/or quality plan does not correspond with the actual process, the issue must be corrected.</p>	<p>7/15/09</p>
<p>4.8 IMDS Compliance</p>	<p>Suppliers must submit and meet all requirements of IMDS prior to PPAP approval being granted. See section AK Tube IMDS requirements, section 8.2.</p>	<p>7/15/09</p>

<p>4.9 Deviation Process</p>	<p>AK Tube requires strict adherence to a formal deviation procedure when the following situations arise: AK Tube production schedules require shipment of new/revised materials prior to Production Part Approval Process; or Supplier discovers any type of non-conformance in a lot/batch of product, which is urgently needed to meet the AK Tube production schedule. In either situation, the Supplier MUST obtain prior approval from AK Tube before making shipments. An approved deviation is required before shipment of any product. The acceptance of a deviation will be dependent on the nature and extent of the non-conformance and will be authorized in writing to the Supplier. In the case where a deviation is required the Supplier will notify Purchasing of the situation with detail. Purchasing will write the deviation and submit to Engineering and the affected manufacturing site for approval. When approval is received Purchasing will notify the Supplier that the deviation has been granted. The Supplier must include a copy of the approved Deviation Form with the shipment of parts to the manufacturing site. The Deviation Number must be clearly marked on all shipping papers, documents and containers. Failure to follow this procedure will result in a Material Rejection Report and reflect on the Supplier's Quality Performance Rating.</p>	<p>7/15/09</p>
<p>4.10 Quality Performance Requirements</p>	<p>AK Tube expectation is that our Suppliers ship defects free material. If nonconforming material is identified at any AK Tube site, the Supplier will be immediately notified of the non-conformance. Suppliers have the opportunity to mitigate and dispute the validity of the non-conformance. All validated non-conformances will affect the Supplier's overall performance rating. Once disposition of the material is determined, a copy of the Material Rejection Form is sent to the Supplier. If so noted on the Material Rejection Form, the Supplier has responsibility to provide corrective action. Note: When a non-conforming part number is identified, Suppliers are required to notify all other AK Tube receiving site(s) of the non-conformance issue.</p> <p>*Quality Alerts will be sent to all suppliers on any issue that has the potential to occur at another "like" supplier. (All suppliers will be notified to be "on the alert," to watch for the similar issue at their location.)</p> <p>*If repeated infractions occur and supplier corrective actions do not resolve the issues, the supplier will be placed on a probation status. All purchases from these suppliers will be limited and monitored closely.</p> <p>*AK Tube will remove a supplier from the Approved Supplier List, after 6 months of probation and/or repeated attempts to work with the supplier fail to produce an acceptable outcome. The Supplier may be removed sooner if the supplier refuses to work with AK Tube in resolving issues. This will be a joint decision with Quality Assurance.</p>	<p>5/1/18</p>

<p>4.11 Supplier Corrective Action</p>	<p>The Supplier shall emphasize prevention rather than detection through quality planning practices such as the use of Control Plans, FMEAs, and in-process data collection. The Supplier shall establish and maintain documented procedures for implementing corrective and preventive action. When external non-conformances occur, AK Tube may require a formal written report from the supplier as to what actions have been taken to correct the problem using the 8-D disciplined problem solving format.</p> <p>The corrective action form currently used by the Supplier is acceptable provided it covers the following areas: (8D format)</p> <ol style="list-style-type: none"> 1.) Team- who is working on the issue, with leader's name / phone number 2.) Problem Description – must reference the AK Tube claim number. 3.) Containment – reference section 4.5.2 for mandatory containment activities. Exit criteria must contain re-certification per section 4.14 of this manual as a minimum. 4.) Root Cause – complete with validation – what caused error to occur, what allowed it to go through your system undetected. 5.) Corrective Action(s) – list actions required 6.) Implementation Plans – complete with timing /validation 7.) Prevention – evidence of evaluation of “like and similar” processes / products 8.) Congratulations – how was team rewarded? <p>If you do not have a corrective action form that covers these areas, one will be provided upon request.</p> <p>Note: Timely documented corrective action to this report is required.</p> <p>Upon notification of the problem:</p> <ol style="list-style-type: none"> 1. Containment action must be developed and implemented within 24 hours. 2. Possible root cause(s) with timely planned corrective action(s) and responsibilities must be completed and submitted to AK Tube within two weeks, unless otherwise agreed upon with the concurrence by the AK Tube facility representative. 3. Robust corrective actions should be targeted for verification/closure within 30 working days and all process documentation (Process Flow, PFMEA, Process Control Plan, and Operating Instructions) needs to be updated. <p><u>Raw Materials:</u> <u>Criteria that would potentially generate a request for an 8D:</u></p> <ul style="list-style-type: none"> • Damaged slit to width materials in excess of \$5,000 • 2 or more damaged Master Coils in a 30 day period • Damage examples: edge damage, wrong gage, rust, surface defects • Three (3) consecutive months of on-time delivery performance of less than 98% • Supplier with multiple issues over a 7 day period (regardless of cost) • Consistently borderline performance – monitored quarterly 	<p>8/16/16</p>
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	<p>*If repeated infractions occur and supplier corrective actions do not resolve the issues, the supplier may be placed on a probation status. All purchases from these suppliers will be limited and monitored closely.</p> <p>*AK Tube will remove a supplier from the Approved Supplier List, after 6 months of probation and/or repeated attempts to work with the supplier fail to produce an acceptable outcome. The Supplier may be removed sooner if the supplier refuses to work with AK Tube in resolving issues. This will be a joint decision with Quality Assurance.</p>	
<p>4.12 Mandatory Containment Activities (See also 4.12.1)</p>	<p>In addition to the corrective action requirements listed above, the following containment activities are to be implemented by the supplier following issuance of a Material Rejection Form.</p> <ul style="list-style-type: none"> • Current material held by supplier is to be 100% evaluated for reported nonconformance (records of sort results must be maintained and available). • Sorted material is to be identified by labels stating “100% SORTED – Material Rejection (###)” This can be handwritten or via a printed label. This must be visible on each unit (or container), and placed near the part number label. • Sorting shall continue until material has been re-certified. <p>NOTE: Material received following a Defective Material Rejection (DMR) and prior to the Supplier being released from Level 1, without this sort label attached is subject to rejection without inspection by AK Tube.</p> <p>For material in-transit or at AK Tube location(s), Suppliers shall contact the receiving department at AK Tube for determination of appropriate disposition per the following:</p> <ul style="list-style-type: none"> • Return to supplier for sorting • Accept at AK Tube site under deviation (reference section 4.4 of this manual) • Sort at AK Tube site by Supplier personnel • Sort at AK Tube site by third party personnel (Supplier responsible for all charges) • Sort at AK Tube site by AK Tube personnel (reference section 4.13 for charges) <p>NOTE: If a third party source is not available for sorting / development / process improvement activities; contact the receiving AK Tube facility for assistance.</p>	<p>7/15/09</p>
<p>4.13 Disposition of Nonconforming Material</p>	<p>AK Tube shall contact the Supplier for disposition of suspect material. In the event of shipment of suspect or non-conforming product to AK Tube, caused by the Supplier’s product, the Supplier will be debited for associated customer charges. Suppliers are expected to be involved with customer required sorting / on-site review as appropriate.</p>	<p>7/15/09</p>

	<p>If Supplier sorting proves to be ineffective (i.e., AK Tube continues to receive defective material from sorted shipments), the Supplier will be placed on Monitored Shipping Status.</p> <p>It is the responsibility of the Supplier to make sure that all claims accurately reflect the non-conformance and amount of defectives reported. These numbers impact the individual Supplier Performance. If the Supplier disagrees, they must contact AK Tube site to resolve. The Supplier will be responsible for “extraordinary” costs incurred because of the non-conformance.</p>	
4.14 Parts Delivery Performance	<p>AK Tube requires 100% On-Time delivery performance from its Suppliers. Any changes to the delivery schedule, unless presented in writing from AK Tube, are not valid.</p> <p>If material does not meet the delivery schedule in either quantity and/or date required as specified by the AK Tube manufacturing site, the Supplier will be notified of the nonconformance.</p> <p>If this occurs, the Supplier may be required to submit corrective action per sections 4.5.1 and 4.5.2.</p> <p>It is the responsibility of the Supplier to make sure that all Delivery Issue Notices are accurately reported. These documents impact the individual Supplier performance record. If the Supplier disagrees, they must contact AK Tube to resolve.</p> <p>The Supplier will be responsible for “extraordinary” costs incurred resulting from the delivery issue.</p>	8/11/16
4.15 Supplier Development	<p>Supplier Development will be based on the supplier’s quality performance and importance of the product supplied. On an annual basis as a part of “Supplier Development,” raw materials suppliers, that are not certified to IATF or the current quality standard, will be asked to provide evidence of compliance to one of the elements in the current quality standard. The choice of which element will be based on past requests for evidence (so that elements are not repeated) and from input from the supplier. If a supplier is working toward compliance and has a particular element in place, that can be offered as evidence in place of the requested element.</p>	5/1/18
4.16 Continuous Improvement	<p>Continuous improvement is essential to successfully compete in today’s business environment. All Suppliers shall continuously improve in quality, service (including timing and delivery) and cost to benefit AK Tube and the Supplier’s own organization.</p> <p>Continuous improvement shall extend to all product characteristics with the highest priority on special characteristics. (Those characteristics that will have the most significant effect on the finished product produced.) Characteristics identified as “pass through” characteristics, are required to have error proofing (poke-yoke) applied to process steps where possible. Where a poke-yoke is not feasible, capability data must be available upon request.</p>	7/15/09

	Improvements made where the original targets have not been met are by definition corrective actions, not continuous improvement.	
4.17 Probationary Guidelines	<p>AK Tube Suppliers who fail to meet the quality and/or delivery requirements may be subject to Probationary action. Probationary guidelines are as follows:</p> <ul style="list-style-type: none"> • 3 consecutive months with Parts Per Million defective (PPM) greater than 500. If PPM rates are not applicable, determination will be made by 3 consecutive months of claims for poor quality or poor quality trends over a 6 month period. • 3 consecutive months with Delivery Performance less than 98% • Recommendation of Purchasing Agent with agreement of the VP Procurement • Recommendation of AK Facility Quality Supervisor or higher and / or Site Manager with agreement of the Purchasing Agent and VP Procurement. <p>Purchasing Dept. will send notification of probation and require the Supplier to be placed on Probation status.</p> <p>Suppliers, who fully demonstrate successful and satisfactory results of all mandates and requirements, may be reinstated and their status of probation lifted.</p> <p>Suppliers who have been placed on Probation more than once may be subject to termination as a supplier to AK Tube. This does not include Probationary Status when in the “New Supplier” approval phase.</p>	7/15/09
Section 5.0	Tooling	
5.1 Tooling	<p>Tooling purchased by AK Tube, for use by the supplier in the production of AK Tube products, must be specifically marked and designated for use on the production of AK Tube products only.</p> <p>Use of AK Tube owned tooling for any purpose other than production of AK Tube products is strictly forbidden without prior written consent.</p>	7/15/09
Section 6.0	Logistics	
6.1 Logistics Policy	<p>All Suppliers are required to fully comply with AK Tube’s policies as defined in this manual and associated purchasing document. Each AK Tube location has specific requirements, it is the Suppliers’ responsibility to obtain and follow these requirements. Requirements can be obtained from the AK Tube Purchasing Manager.</p> <p>The selected transportation modes shall be appropriate for the movement of the product, as well as compliant with national and international transportation and safety regulations. AK Tube has preferred carriers for land, air and ocean transport. Contact the AK Tube Shipping Manager when seeking carrier preferences.</p> <p>During transport, product must be secured in such a manner that shipments arrive intact and in good condition. AK Tube reserves the</p>	7/15/09

	<p>right to refuse loads if the shipment is deemed unsafe to offload or store. Examples of unsafe conditions may include, but are not limited to, rotted trailer floorboards, unstable stacks of pallets and general poor trailer, container or load conditions.</p> <p>Documentation for each shipment is the responsibility of the Supplier and must be complete, timely and legible. The Supplier is to provide all necessary customs and legal documents as required by each country. Requirements for documents such as Bill of Lading, Packing list, and Manifests can be obtained from the AK Tube Shipping Manager.</p>	
6.2 Basic Packing List Requirements	<p>Each shipment must be accompanied by a Packing Slip that clearly and legibly displays:</p> <ul style="list-style-type: none"> • Sold to address • Ship to address • Ship from address • Ship date • AK Tube purchase order number or release number • AK Tube purchase order line item number • AK Tube part number and revision level letter • AK Tube part description (per AK Tube Automotive drawing) • Quantity (units as specified by the purchase order) • Number of containers, skids, etc. • Weight of the shipment (gross and net) • Manufacturer's lot number or heat number (when applicable) • Chemical/physical analysis (when applicable) • Carrier used <p>Electronic packing slips, provided by an electronic document number, may be acceptable in some locations. Contact your local AK Tube Logistics Manager to determine if this service is available. Shipping documents must be provided in a separate envelope.</p>	7/15/09
6.3 Basic Bill of Lading Requirements	<p>The bill of lading must be included with each shipment and reference:</p> <ul style="list-style-type: none"> • Bill to address (freight billing) • Ship to address • Ship from address • Weight • Freight pieces • Description of product • Carrier • Any other regional requirements, such as origin of melt. <p>Please note that AK Tube uses 3rd party freight payment in some regions. Please ensure that the freight invoices are sent to the appropriate address.</p>	10/17/13
Section 7.0	Packaging	
7.1		7/15/09

Labeling and Identification	<p>The Supplier with a non-handwritten, identification label shall identify incoming material. Specification AIAG B10 (www.AIAG.ORG) or other regional shipping part identification requirements shall apply. Provision shall be made on the package system for the container identification and its contents. Regional requirements for hazardous material shipments must also be adhered to. Specific identification requirements and label locations shall be agreed upon with the receiving location.</p> <p>For purchased steel coils – the identification should include the AK Tube part number, heat number, quantity and date of manufacture.</p>	
Section 8.0	Environmental Health And Safety	
8.1 Environmental Policy	<p>People are our most important asset; therefore AK Tube is committed to health and safety as a primary focus. It is expected that all Suppliers to AK Tube locations conduct business in the same manner and that goods and services provided to this location be delivered in a safe, ergonomic and environmentally friendly condition.</p>	7/15/09
8.2 IMDS (International Material Data Systems) Requirements	<p>AK Tube supports the End-of-Life Vehicle Initiative being implemented by the major original equipment vehicle manufactures. The data to support this initiative is provided through the IMDS (International Material Data System).</p> <p>You will not be allowed to PPAP new material or material changes to AK Tube unless your Reportable Substance Data is entered into IMDS. Further information on this initiative can be obtained by clicking on the following link: http://www.mdsystem.com/html/en/home_en.htm</p> <p>You are required to register directly into the IMDS database and enter your BOM, material, and weight data, directly into the IMDS web-site. AK Tube requests that each supplier obtain a user id and password for the IMDS System. Include in your PPAP submission, a letter stating that you have entered the data on the IMDS web site. Include with the letter, the part numbers for which the data was entered, the date when the data was entered, and the ID Node number.</p> <p>Note: Suppliers may be required to provide IMDS information for items with previously approved PPAP's. This is in support of OEM's IMDS requirements for existing products.</p> <p>AK Tube supports the European Union initiative, R.E.A.C.H. Although we are not suppliers of any "Substances of Very High Concern" (SVHC) to any of our customers, we continue to monitor this every-growing list of substances.</p> <p>Suppliers may be required to provide proof of Conflict Minerals compliance according to the Securities and Exchange Commission (SEC) regulations, section 1502 of the Dodd-Frank Act. http://sec.gov/rules/final/2012/34-67716.pdf</p>	10/17/13

	<p>AK Tube strongly suggests that Suppliers make themselves aware of the European Union requirements under the REACH initiative by visiting: http://echa.europa.eu/home_en.asp</p> <p>An updated list of “Substances of Very High Concern” (SVHC) should be monitored: http://echa.europa.eu/chem_data/candidate_list_table_en.asp</p>	
8.3 Supplier Visits	<p>Suppliers are encouraged to visit AK Tube Manufacturing and test areas. This requires approval, in advance of the visit, to facilitate the participation of the appropriate level of AK Tube personnel. Visitors entering any test or manufacturing areas (beyond front offices) are required to wear eye, foot, and hearing protection, gloves, welding jackets, with removal of rings and earrings.</p> <p>AK Tube maintains a supply of protection devices for visitors. Levels of protection should be discussed with the appropriate purchasing and health and safety personnel in advance of the visit. Suppliers going into the plant must be on the alert at all times and obey all warning signs and plant visitor rules. When walking in the aisles, stay to the right and obey all traffic signs. AK Tube facilities and offices maintain a smoke free environment. Smoking is prohibited except in designated areas.</p>	7/15/09
8.4 Security	<p>AK Tube maintains security systems to protect assets and limit the entry of authorized personnel. To help maintain building and office security, Suppliers must make an appointment to visit a site in advance. Once at the facility, all Suppliers will be required to sign in, be assigned a visitor badge and sign out at the end of the visit. While going into manufacturing, office or test areas, visitors must be accompanied by the responsible AK Tube representative at all times. Taking pictures or video taping of AK Tube operations of facilities without authorization is strictly forbidden. No AK Tube printed or electronic files, blueprints or other documents may be removed from the premises or copied without permission.</p>	7/15/09
8.5 Contingency Plan	<p>The Supplier shall prepare and document contingency plans to satisfy AK Tube requirements in the event of an emergency such as utility interruptions, labor shortages, key equipment failure and field returns.</p>	7/15/09
Section 9.0	Ethics	
9.1 Supplier Code of Conduct	<p>At AK Tube, we are dedicated to helping our customers succeed by providing innovative ERW tubing products that offer consistent high quality, shorter lead times, and value-added features that set their products apart.</p> <p>We accomplish this goal, in part, through creating partnerships with suppliers who share our commitment to quality and low cost, and who</p>	7/15/09

<p>9.2 Environmental Responsibility</p>	<p>operate under a philosophy that focuses on integrity and doing the right thing. We value the partnership commitment we share with our suppliers.</p> <p>The Supplier Code of Conduct applies to businesses that provide products or services for AK Tube and its parent company, AK Steel.</p> <p>AK Tube recognizes that legal and cultural requirements vary in a global business environment, and expects that all our Suppliers follow the applicable laws of their country or territory. At the same time, the Supplier Code of Conduct sets forth certain universal requirements that Suppliers are also expected to follow.</p> <p>These requirements are consistent with AK Tube's values and the expectations the company places on its own employees. The Code provides the foundation for AK Tube's ongoing evaluation or audit of a Supplier and constitutes additional terms of the Sourcing Agreement.</p> <p><u>Suppliers must protect the environment</u></p> <p>Suppliers must comply with all applicable environmental laws and regulations. If these requirements are less stringent than AK Tube requirements, the Supplier will be encouraged to meet the standards outlined below:</p> <p>A. The Supplier should work to minimize environmental impact through a program similar to ISO 14001.</p> <p>B. The Supplier should have procedures for notifying local community authorities in case of an accidental discharge or release of hazardous materials into the environment, or in the case of any other environmental emergency.</p> <p>C. The Supplier must store hazardous and combustible materials in secure and ventilated areas and dispose of them in a safe and legal manner.</p> <p>D. The Supplier should monitor, measure and reduce greenhouse gas emissions and manage ozone-depleting compounds in a manner that meets standards such as the Montreal Protocols.</p> <p>E. The Supplier should establish programs to minimize industrial waste and promote recycling.</p> <p>F. The Supplier should maintain emission and discharge permits that monitor compliance.</p>	
<p>9.3 Health & Safety</p>	<p><u>Suppliers must provide a safe working environment</u></p> <p>A safe working environment is a critical component of an effective partnership between AK Tube and a supplier.</p> <p>To that end, the following guidelines apply:</p> <p>A. The Supplier must comply with all applicable laws regarding working conditions, including worker health and safety, sanitation, fire safety, risk protection and electrical, mechanical and structural safety by implementing an employee safety management system such as OHSAS 18001.</p> <p>B. The work environment should be well lighted, ventilated and free from temperature extremes.</p>	

<p>9.4 Security of Information</p>	<p>C. There must be sufficient, clearly marked exits that allow workers to evacuate in an orderly fashion in the event of a fire or other emergencies. Emergency exit routes should be posted and clearly marked in all sections of the Supplier's facility. Fire alarms and extinguishers should be placed on each floor, along with emergency lights above exits and on stairwells.</p> <p>D. Production machinery must be equipped with operational safety devices, and must be inspected and serviced on a regular basis.</p> <p>E. The Supplier should have strict procedures that prevent the use of illegal drugs or alcohol in the factory and that prevent impaired employees from working.</p> <p>F. Appropriate personal protective equipment, such as gloves, rubber boots, safety glasses, goggles, earplugs and earmuffs should be used where applicable and made available to all workers at no cost.</p> <p>G. A Supplier must provide safe and accessible drinking water for all workers and allow reasonable access to clean and sanitary toilet facilities throughout the working day.</p> <p>H. The Supplier must have procedures for dealing with injuries that require medical treatment inside of the facility, as well as procedures to manage serious injuries or emergency cases that require support from outside organizations.</p> <p><u>Supplier's must protect AK Tube technology, information and intellectual property.</u></p> <p>The secure use and distribution of information and data in the workplace is critical to AK Tube and a Supplier's success in a competitive marketplace. Both parties must maintain physical and electronic security for all confidential information. Each party's employees should use extreme care in protecting confidential or proprietary information of any kind. Face-to-face confidential discussions should be conducted in a secure location.</p> <p>If confidential information is to be discussed or exchanged between AK Tube and the Supplier, or the Supplier and a Third Party, the parties must first ensure that a Confidentiality or Non-Disclosure Agreement has been signed and is being complied with.</p>	
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Printed copies of this document are considered to be **UNCONTROLLED** unless the word "CONTROLLED" is stamped in **RED**.

Supplier 8D Corrective Action Report

Date of concern:		Ref. No. <small>(Internal Tracking Number)</small>	
Revision history <small>(Dates 8D updated)</small>	Supplier Name:	Part Name:	
Issue Date	Contact:	Part Number:	
Req. Close Date	Phone:		
<small>(3 Days for Initial Findings) (10 Days for Close)</small>	Fax:		
1. Team: (name/title)		2. Problem Description (Definition)	
3. Containment Action(s) - (suspect qty, containment actions, and fallout qty)		Implementation Date	
In house -			
In Transit qty -			
Components at the customer location -			
4. Root Cause(s) & Escape Path		% Contribution	
-			
How was the suspect part produced?			
How did it get shipped?			
5. Chosen Permanent Corrective Action(s) (address all root causes)		Target Date	% Effect
6. Implemented Permanent Corrective Action(s) w/Validation		Implementation dates	

7(A). Actions To Prevent Recurrence (preventative action)			Implementation dates
7(B). Corrective Action Impact (Other areas or part numbers CAR can be applied)			Date of Impact Determined
7(C). Actions verified (To assure corrective action effectiveness)			Verification date
FMEA	Work Instructions	CP:	Flow Diagram:
8. Congratulate Your Team		Close Date	Reported By: Name: Title: Department: Phone:

100% SORTED

Material Rejection # _____

Sort Issue: _____

Sort Date: _____

Inspector (print): _____

Inspector (signature): _____

Notify Quality Control upon receipt of this material

REV #	REVISION DATE	REVISION SUMMARY	AFFECTED PAGES
0	6/27/02	Initial Revision	All
1	4/2/08	Added cover page for SQM. Removal of references to QS9000, replaced with TS16949. Reference to AIAG web site for PPAP edition, PPAP level 4	1, 3, 4, 17
2	12/19/08	Added Index; added 11.1.5 – Supplier Development; added 8.1.9.6 – Contingency Plans	2, 7, 15
3	2/13/09	Revised the format and content of each section in this manual to be more in line with current requirements	All
4	7/15/09	Revised ISO/TS16949:2002 to 2009	All
5	9/16/13	3.4: changed “The PPM is generated on the total quarterly...” to “When specified as an additional requirement, the PPM may be generated...” 4.15: changed “ On an annual basis as a part of “Supplier Development” raw material suppliers will be asked to provide evidence of conformance to one of the elements...” to “raw material suppliers, that are not ISO/TS16949 certified will be asked to provide evidence of compliance to one of the elements...”	8, 14
6	10/17/13	3.2: Removed the “Ratings ranking” from the section. 3.4: Removed the “Ratings ranking” from table. 4.11: changed “on-time delivery performance...” to “Three (3) consecutive months of on-time delivery performance of less than 98%”. 6.3: changed “country of origin” to “melt of origin”. 8.2: Added “Suppliers may be required to provide proof of Conflict Minerals compliance...”.	8, 12,14,16,17
7	2/18/14	Corrected grammatical errors throughout the entire document.	All
8	9/14/2015	Globalized document for implementation at all AK Tube locations. 3.3 removed rating numbers. 3.2: changed Supplier Quality Survey to Supplier Self Assessment Questionnaire 3.3: removed supplier criteria for approval of having a rating of 2, 3, or 4 3.4: changed the method of metric for Coil and non-Coil materials and modified scoring for PPM of each category (Coil & Non-Coil) 3.4: changed calculation from tons to lbs.	8 & 9

9	8/16/16	<p>Section History – Updated and revised section. Section 3.4 – Revised Quality PPM requirements to reflect AK Tube customer requirements.</p> <p>Section 4.11</p> <ol style="list-style-type: none"> 1) Changed the word will to may in paragraph 1 2) Removed paragraph 4, reference to quality alerts 3) Changed will to may in paragraph 5 (now paragraph 4) 4) Corrected spelling in the last paragraph. <p>Section 4.14</p> <ol style="list-style-type: none"> 1) Changed the word will to may paragraph 2. 	6, 9, 13-15
10	5/1/18	Removed obsolete references, updated Approval block	5, 7-9, 12, 14, 26

APPROVALS

Signature	Title	Date
	President & CEO	
	VP of Procurement/Purchasing	
	VP of Operations	
	VP of Strategic Operations	